Integrated Regional Modeling

Expert Review Panel
October 31, 2003

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Denver Regional Council of Governments
Metro Vision Resource Center

Overview

- Philosophy of Model Design
- Overview of the IRM Project
- Key Issues of Concern

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Philosophy of Model Design

- Collaborative and iterative
  - Involve local and regional users
  - Driven by the needs of region's decision makers
- Best practices and ideas
  - Review of other Metro Areas Efforts
  - Expert review
  - Consultants

Overview & Key Issues

Philosophy of Model Design

- Integration of Land use/Transportation/ Environmental models
  - Seamless integration of components
    - Improve data management
  - Accurate representation of interrelationships
- Improved process
  - Timely completion of the modeling process
  - Information presented in an appropriate form
  - Flexible framework
    - Meet changing policy needs

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Overview of the IRM Project

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IRM Project Timeline

- Phase I: Information and resource gathering
  - Almost Complete
- Phase II: Refresh current models
  - December, 2003
- Phase III: Vision phase of new model
  - Underway
- Phase IV: Model development
  - Start in 2004. Completed by 2007

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IRM Project Roles

Policy Review Panel

- Identify issues and concerns facing the region
- Define information needed to inform policy decisions

Technical Review Panel

- Advise on the technical information required by local decision makers
- Assist in understanding the availability and limitations of required data
- Offer peer review

Overview & Key Issues

IRM Project Roles

Expert Review Panel

- Identify best practices in regional modeling
- Advise on the key issues
- Provide insight into limitations and pitfalls of selected options

Model Development Team

- Undertake the design and development work
- Collect the data for use in the modeling process

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Process Thus Far

- Technical Review panel
  - Two meetings
- Policy Review panel
  - One meeting

Technical Review Panel
Key Issues and Concerns

- Maintaining the existing system
- Increasing the share of alternative modes
- Enlarging the transit system
- Maintaining environmental conditions
- Increasing highway capacity

Technical Review Panel
Recommendations

- Capture trip-chaining
- Congestion influences on trip decisions
- Capture economic impacts
  - Transportation system on local development
  - Local development on transportation demand
- Cost effects on trip and mode choices
- Representation of system performance factors

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Policy Review Panel
Key Issues and Concerns

- Model purpose
  - Analytical versus decision support tool
- Timeliness of modeling process
- Better modeling of transit
- Need to address the changing character of the region
  - Changing demographics and travel patterns

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Policy Review Panel
Key Issues and Concerns

- Appropriateness of outputs
  - What gets reported
    - More than just system performance
  - How it's reported
    - Data vs. information
- Better modeling of freight
- Improved model accuracy
  - Confidence intervals/error bars
  - Adjustment based on observed outcomes

Expert Review Panel
Your Charge

Today:
- Discuss approaches for developing an integrated regional modeling system
- Discuss appropriate modeling responses to key issues

Optional:
- Participate in email discussions as modeling techniques are reviewed and selected

Next meeting:
- Review model design options
- Recommend specific approaches for addressing key issues
- Discuss limitations of preferred modeling approaches

Key Issues of Concern

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Key Issues of Concern

1. Sensitivity to price and behavioral changes
   - Location choice
   - Use of alternative modes and toll facilities
   - Parking
   - Energy
2. Modeling low-share mode alternatives
   - Bike and pedestrian
   - Work at home
   - Dial a ride, Park n ride

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Key Issues of Concern

3. Impacts of development patterns on travel behavior
   - Urban centers
   - Activity centers
   - Urban corridors
   - Urban Growth Boundaries
4. Impacts of system and system condition
   - On development patterns (including location & price)
   - On travel behavior (including work choice & induced demand)

Key Issues of Concern

5. Ability to examine policy choices
6. Improve validity and reliability
   - Transit
   - Congestion
   - Suburb-to-suburb trips
7. Reflect non-system policy changes
   - TDM
   - ITS

Key Issues of Concern

8. Ability to show environmental effects
9. Better information for analyzing impacts on specific sub-groups
10. Better analysis of freight (or goods) movement